

**BEFORE THE
PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA
DOCKET NO. 2018-319-E**

IN THE MATTER OF:)	
)	
Application of Duke Energy Carolinas, LLC for)	VOTE SOLAR'S ERRATA TO THE
Adjustments in Electric Rate Schedules)	DIRECT TESTIMONY OF JUSTIN R.
and Tariffs and Request for an Accounting Order)	BARNES
)	

ERRATA TO THE DIRECT TESTIMONY OF JUSTIN R. BARNES

1. Page 2 Line 11, replace "246" with "236".
2. Page 4 Line 4, replace "\$1 million" with "\$3.1 million".
3. Page 16 Line 19. After "\$25,000."add "It is my understanding that the Company has allowed counsel to Vote Solar to review the study."
4. Page 51 Line 5, replace "\$1.08 million dollars" with "\$3.18 million".
5. Page 51 Line 6, replace "\$249,000" with "\$1.03 million".
6. Page 51 Line 7, replace "\$827,000" with "\$2.15 million".
7. Page 51 Line 9, replace "\$395,000" with "\$1.64 million".
8. Page 56 Line 3-5, remove "In addition, since the study and its results are not publicly accessible, there is a need for transparent evaluations conducted in full view of stakeholders and the Commission."
9. Page 58 Line 17, replace "\$0.1124/kWh" with "0.1124 cents/kWh".
10. Page 58 Line 18, replace "\$0.1332/kWh" with "0.1332 cents/kWh".

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) **DIRECT TESTIMONY OF JUSTIN R.**
) **BARNES ON BEHALF OF**
) **VOTE SOLAR**
)

1 Commission, the Oklahoma Corporation Commission, the Public Utility
2 Commission of Texas, and the Utah Public Service Commission as an expert in
3 distributed generation (“DG”) policy, rate design, and cost of service.¹ My
4 *curriculum vitae* is attached as Exhibit JRB-1.

5 **Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE**
6 **SOUTH CAROLINA UTILITIES COMMISSION (“COMMISSION”)?**

7 A. Yes. I submitted testimony on behalf of The Alliance for Solar Choice in
8 Commission Docket No. 2014-246-E addressing the implementation of 2014
9 Public Act 236, and in Docket Nos. 2015-53-E, 2015-54-E, and 2015-55-E
10 addressing the applications of the state’s three investor-owned utilities (“IOUs”)
11 to establish distributed energy resource programs pursuant to Public Act 236.

12 **Q. ON WHOSE BEHALF ARE YOU TESTIFYING?**

13 A. I am testifying on behalf of the Vote Solar.

14 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

15 A. My testimony addresses the rates application put forth by Duke Energy Carolinas
16 (“DEC” or “the Company”) on issues related to the Company’s proposals
17 involving residential basic facilities charges, AMI-enabled rate design, the South
18 Carolina Grid Improvement Plan, and Excess Deferred Income Tax Rider EDIT-
19 1. My testimony on all of these topics relates to cost of service and rate design.
20 The purpose of my testimony is to show that:

¹ The New Orleans City Council regulates Entergy New Orleans in a manner similar to a state regulatory commission.

1 to a percentage of bill-based design if the rider is approved in order to
2 align it with the underlying causes of excess deferred income taxes.

3 6. Residential net metering customers provide an estimated benefit, in
4 addition to any value of solar calculation, of over \$3.1 million per year to
5 the residential class by reducing the allocation of peak-driven costs to the
6 class.

7 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS TO THE**
8 **COMMISSION ON THE RESIDENTIAL BASIC FACILITIES CHARGE.**

9 A. My recommendations for setting the basic facilities charge are as follows:

10 1. The Commission should reject the changes the Company has made to its cost
11 of service study and re-affirm precedent by directing the Company to
12 eliminate the use of the Minimum System Method from its cost of service
13 study.

14 2. The Commission should make a determination that the basic customer
15 method, which defines customer-related costs as those directly attributable to
16 a customer's service connection, metering, billing, and customer service, is
17 the appropriate method for classifying customer-related costs.

18 3. The Commission should reject the Company's proposed residential basic
19 facilities charge and instead limit any increase in the charge to the percentage
20 increase in residential class revenue requirement that is ultimately adopted in
21 this proceeding.

1 corollary, to provide them with the services they do desire at a cost less than or
 2 equal to the value of the good. This concept has been referred to as using
 3 regulation to impose the “disciplines of competitive markets”.⁹

4 There are broader consequences to this idea, involving the costs and
 5 benefits of utility investments and how they are distributed among customers, but
 6 it is also central to rate design. Since customers cannot make their preferences
 7 known by shopping around, those preferences must be discerned through other
 8 means, such as studies or rate pilots. Customer preferences fall within Bonbright’s
 9 “practical attributes”, and should be balanced with the other ratemaking goals
 10 such as economic efficiency, rate stability, and fairness at apportioning cost of
 11 service. Ideally, in replicating the function of a competitive market, a customer
 12 would have a suite of potential options to choose from that maintain this balance
 13 but also respond to their individual preferences.

14 **Q. HAS THE COMPANY CONDUCTED ANY STUDIES OF CUSTOMER**
 15 **PREFERENCES REGARDING FIXED CHARGES?**

16 A. DEC has participated in an Electric Power Research Institute (“EPRI”) study to
 17 consider residential rate design choices. The Company has indicated that the study
 18 addresses fixed charges.¹⁰ However, I have not been able to view the report
 19 because it is not publicly accessible, requiring a download fee of \$25,000.¹¹ It is

⁹ F. Weston, et al., *Charges for Distribution Service: Issues in Rate Design*, p. 17, REGULATORY ASSISTANCE PROJECT (2000), available at <http://pubs.naruc.org/pub/536F0210-2354-D714-51CF-037E9E00A724>.

¹⁰ DEC response to VS 4-3, attached in Exhibit JRB-2, p.14.

¹¹ See the EPRI website at: <https://www.epri.com/#/pages/product/000000003002013359/?lang=en-US>.

1 my understanding that the Company has allowed counsel to Vote Solar to review
2 the study.

3 **Q. WOULD IT BE REASONABLE FOR THE RESULTS OF THIS STUDY**
4 **TO BE CONSIDERED IN THIS PROCEEDING?**

5 A. Yes, and I say this without knowing the findings of the study. I leave how that
6 could or should occur to the Commission to decide. That said, I find it troubling
7 that the Company possesses information that appears likely to be highly relevant
8 to one of the most, if not the most, significant aspects of its application, which it
9 cannot or will not make available to other parties.

10 **Q. HOW WOULD THE COMPANY'S RESIDENTIAL BASIC FACILITIES**
11 **CHARGE PROPOSALS AFFECT CUSTOMER BILLS?**

12 A. Customers with relatively high usage would be advantaged, experiencing a lower
13 overall rate increase or even a decrease for the highest using customers. Lower
14 usage customers would be disadvantaged, experiencing rate increases well in
15 excess of the average rate increase. For instance, the Company's collective rates
16 proposals would cause a bill increase of \$17.23/month (27.3%) for a customer on
17 Schedule RS with average usage of 500 kWh per month. By contrast, a customer
18 using 2,000 kWh per month would only experience a \$9.75 (4.21%) monthly
19 increase. Table 3 shows the breakdown of bill impacts for Schedule RS.¹²

¹² Sourced from Pirro Direct, Exhibit No. 3, with "Amount of Increase" added as a new column.

1 **Q. CAN THE IMPACTS OF THESE AFFECTS BE QUANTIFIED?**

2 A. Yes. I have estimated that residential net-metered solar production at the time of
3 the Company's test year coincident peak can be expected to have reduced
4 production demand and transmission demand costs allocated to the residential
5 customer class by roughly \$3.18 million dollars. This amount is composed of
6 roughly \$1.03 million representing the residential class's share of jurisdictional
7 cost savings and roughly \$2.15 million representing South Carolina retail
8 allocation savings. Other classes benefitted from the remaining jurisdictional cost
9 savings of roughly \$1.64 million.

10 **Q. PLEASE EXPLAIN HOW YOU MADE THESE CALCULATIONS.**

11 A. I first developed an estimate for what residential solar production would have
12 been at the time of the retail system peak, the hour ending at 3 PM on August 17,
13 2017. For my estimate, I used PVWatts to develop an average solar capacity
14 factor for the hour ending at 3 PM during the month of August. This is reflective
15 of a "typical meteorological year" as used by PVWatts. I applied this to data
16 provided by the Company showing that as of the date of the peak, it had roughly
17 26.3 MW-DC of residential solar net-metered capacity on the system.⁴⁷ I also
18 grossed up the expected solar capacity contribution for marginal capacity losses.

19 I then used this capacity contribution to calculate revised production cost
20 allocators that reflect a no residential solar assumption. To do this I added the
21 solar capacity contribution to applicable system-wide, South Carolina, and

⁴⁷ DEC response to VS 4-11(b), attached in Exhibit JRB-2, p.16. This response states that this figure is for July 31, 2018, but, per confirmation of DEC counsel, the correct date is July 31, 2017.

1 are not known to me, but it is hard to see circumstances where the EPRI study
 2 could be a substitute for actual on the ground information specific to DEC's
 3 customers.

4
 5
 6 **Q. IS THE COMPANY PURSUING ADVANCED RATE PILOTS IN OTHER**
 7 **JURISDICTIONS?**

8 A. Yes. At the conclusion of DEC's most recent North Carolina general rate case, the
 9 NCUC ordered it to "design and propose new rate structures to capture the full
 10 benefits of AMI".⁴⁹ The Order further required DEC to file the details of proposed
 11 dynamic rate structures within six months, in order to "allow ratepayers in all
 12 customer classes to use the information provided by AMI to reduce their peak-
 13 time usage and to save energy."⁵⁰ DEC filed a report in compliance with this
 14 Order in December 2018, but NCUC found the report non-compliant with its prior
 15 decision because among other things, the report did not contain any details of new
 16 tariffs, and the Company's proposed timeline (March 2022) for finalizing new
 17 rate designs was too long.⁵¹

18 In declining to accept the filing, the NCUC observed that this date would
 19 be almost three years after the full completion of AMI deployment, and that DEC

⁴⁹ NCUC. Docket No. E-7, Sub 1146. Order dated June 22, 2018. Finding of Fact No. 39, available at: <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=80a5a760-f3e8-4c9a-a7a6-282d791f3f23>.

⁵⁰ *Id.* p. 124.

⁵¹ NCUC. Docket No. E-7, Sub 1146. Order dated January 30, 2019. p. 4, available at: <https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=12af76f3-f507-4352-92ec-32facb7eaba0>.

V. GRID IMPROVEMENT PLAN COST ALLOCATION AND RATE DESIGN

Q. PLEASE BRIEFLY SUMMARIZE THE NATURE OF INVESTMENTS DEC SEEKS TO UNDERTAKE AS PART OF ITS GRID IMPROVEMENT PLAN.

A. Broadly speaking, the Grid Improvement Plan investments are a collection of transmission and distribution system investments targeted at addressing “Megatrends” impacting grid operations, incremental to the work the Company performs “to maintain base-level operations.”⁵⁴

Q. HOW DOES DEC PROPOSE TO RECOVER THE COSTS OF MAKING THESE INVESTMENTS?

A. The Company proposes to establish a special Grid Improvement Plan tariff rider for two phases of the plan, where Phase 1 begins June 1, 2020 and Phase 2 begins June 1, 2021 with incrementally higher charges than for Phase 1. The rates in the proposed tariff are composed of an incremental monthly fixed charge and an incremental volumetric charge. For the residential class the proposed charges are as follows:

- Phase 1: \$0.42/month and \$0.1124 cents/kWh
- Phase 2: \$0.59/month and \$0.1332 cents/kWh⁵⁵

Q. HOW ARE THESE CHARGES DERIVED?

A. The derivation of the class allocators and the rates themselves stem from the Company’s cost of service study, inclusive of the effects of the Minimum System

⁵⁴ Direct Testimony of Jay Oliver (“Oliver Direct”), p. 28, lines 3-5.

⁵⁵ Pirro Direct, Exhibit No. 7.